

FIG. 1

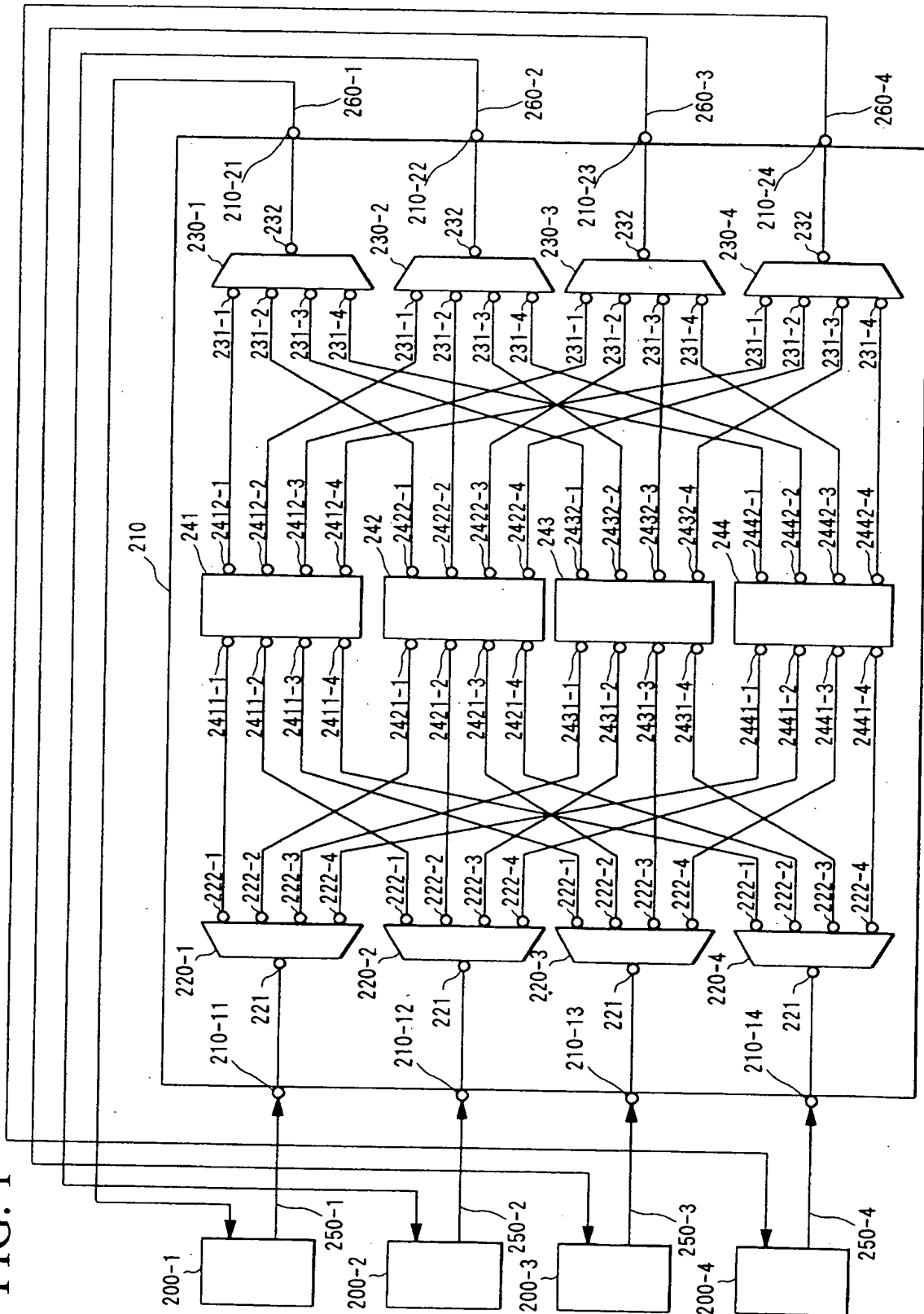
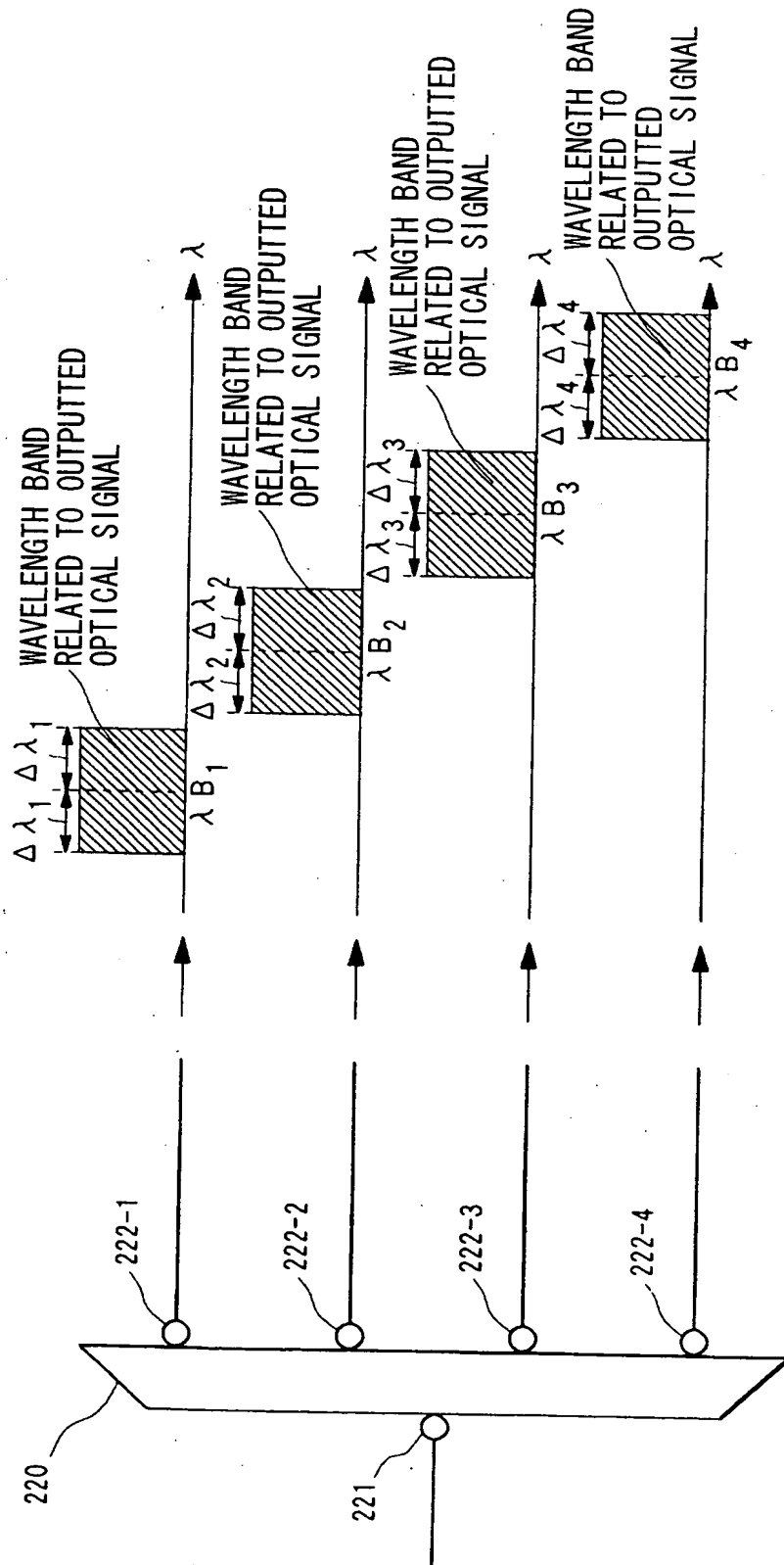


FIG. 2



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FIG. 3

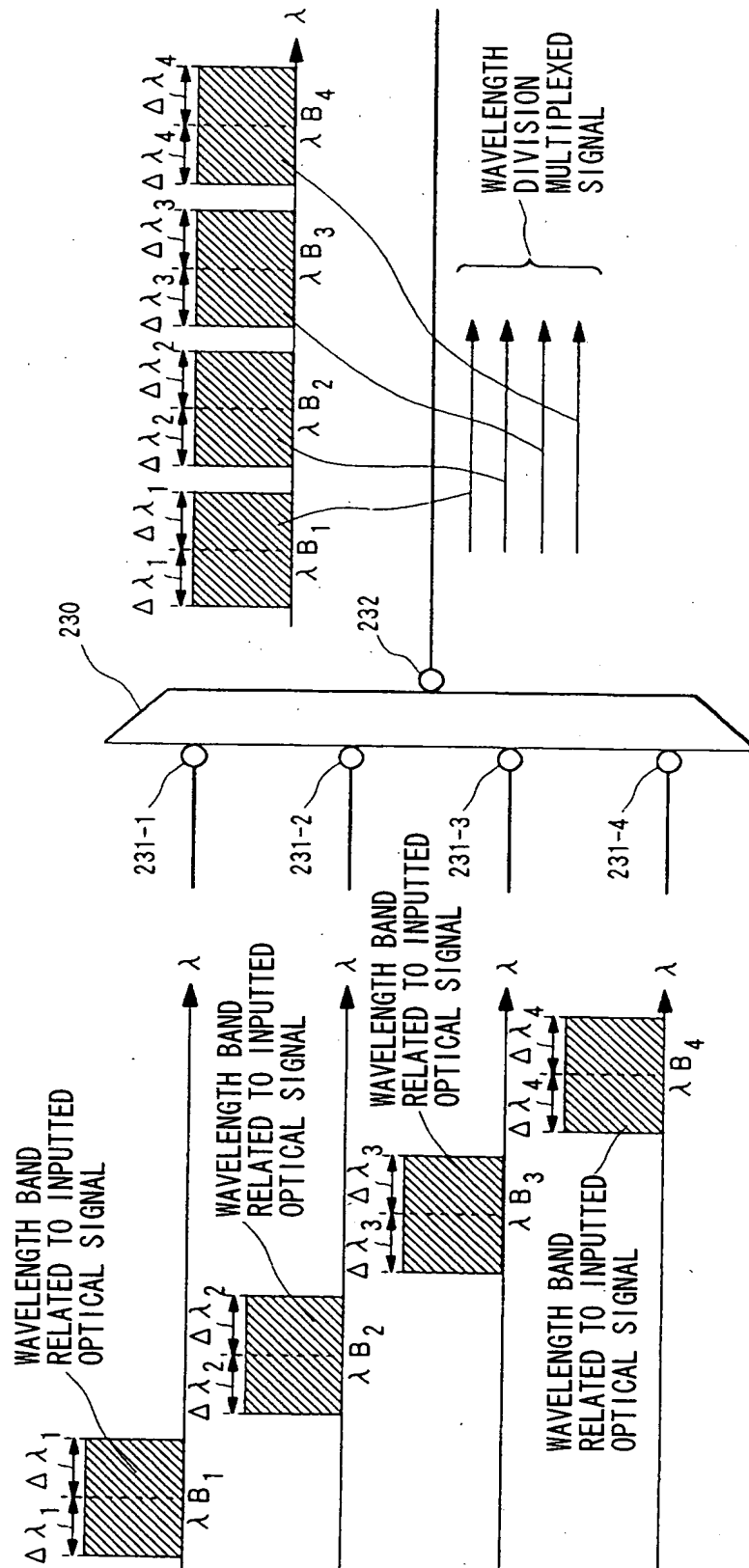


FIG. 4

	FIRST OUTPUT PORT	SECOND OUTPUT PORT	THIRD OUTPUT PORT	FOURTH OUTPUT PORT
FIRST INPUT PORT	$\lambda 11$	$\lambda 12$	$\lambda 13$	$\lambda 14$
SECOND INPUT PORT	$\lambda 12$	$\lambda 13$	$\lambda 14$	$\lambda 11$
THIRD INPUT PORT	$\lambda 13$	$\lambda 14$	$\lambda 11$	$\lambda 12$
FOURTH INPUT PORT	$\lambda 14$	$\lambda 11$	$\lambda 12$	$\lambda 13$

FIG. 5

	FIRST OUTPUT PORT	SECOND OUTPUT PORT	THIRD OUTPUT PORT	FOURTH OUTPUT PORT
FIRST INPUT PORT	$\lambda 21$	$\lambda 22$	$\lambda 23$	$\lambda 24$
SECOND INPUT PORT	$\lambda 22$	$\lambda 23$	$\lambda 24$	$\lambda 21$
THIRD INPUT PORT	$\lambda 23$	$\lambda 24$	$\lambda 21$	$\lambda 22$
FOURTH INPUT PORT	$\lambda 24$	$\lambda 21$	$\lambda 22$	$\lambda 23$

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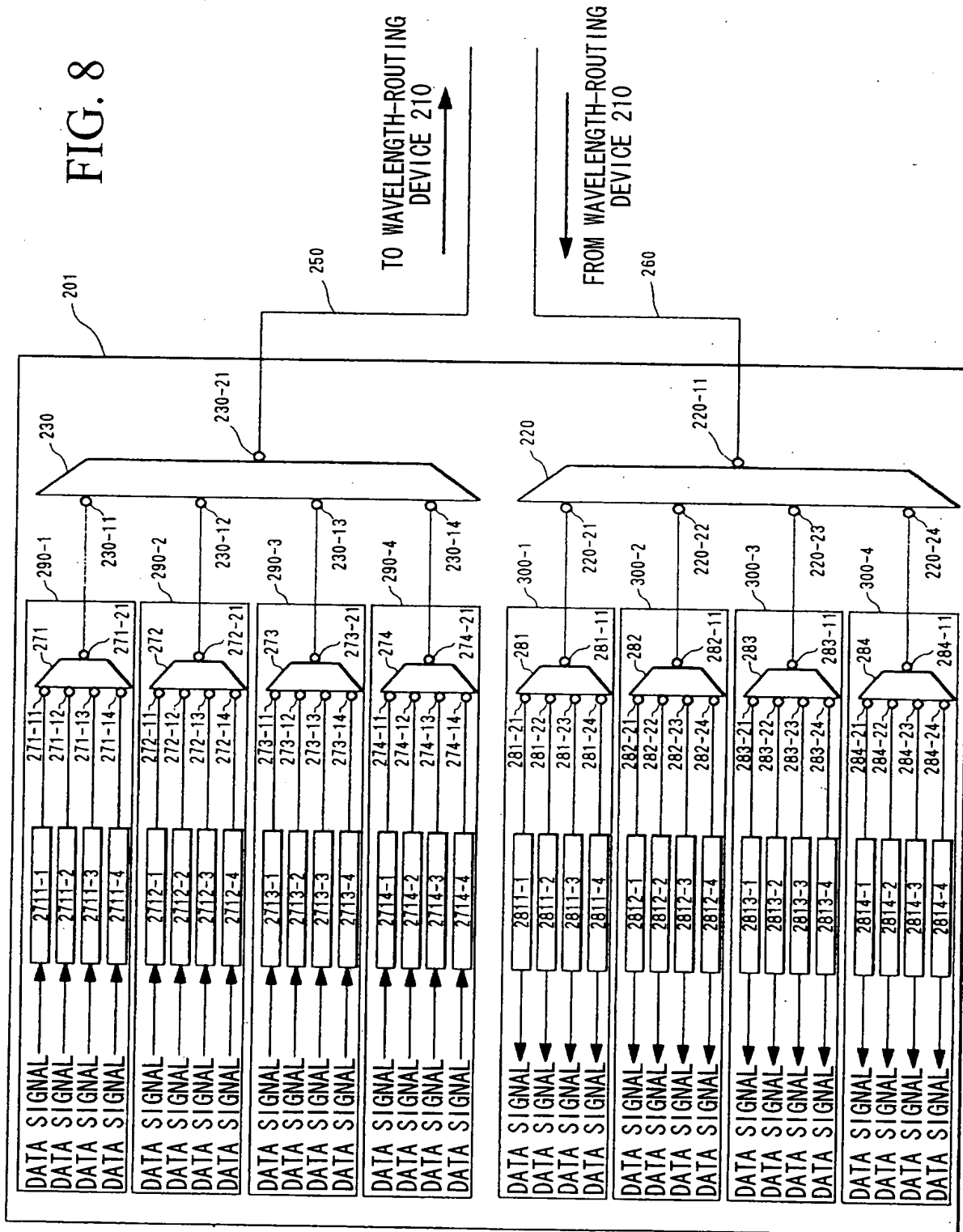
FIG. 6

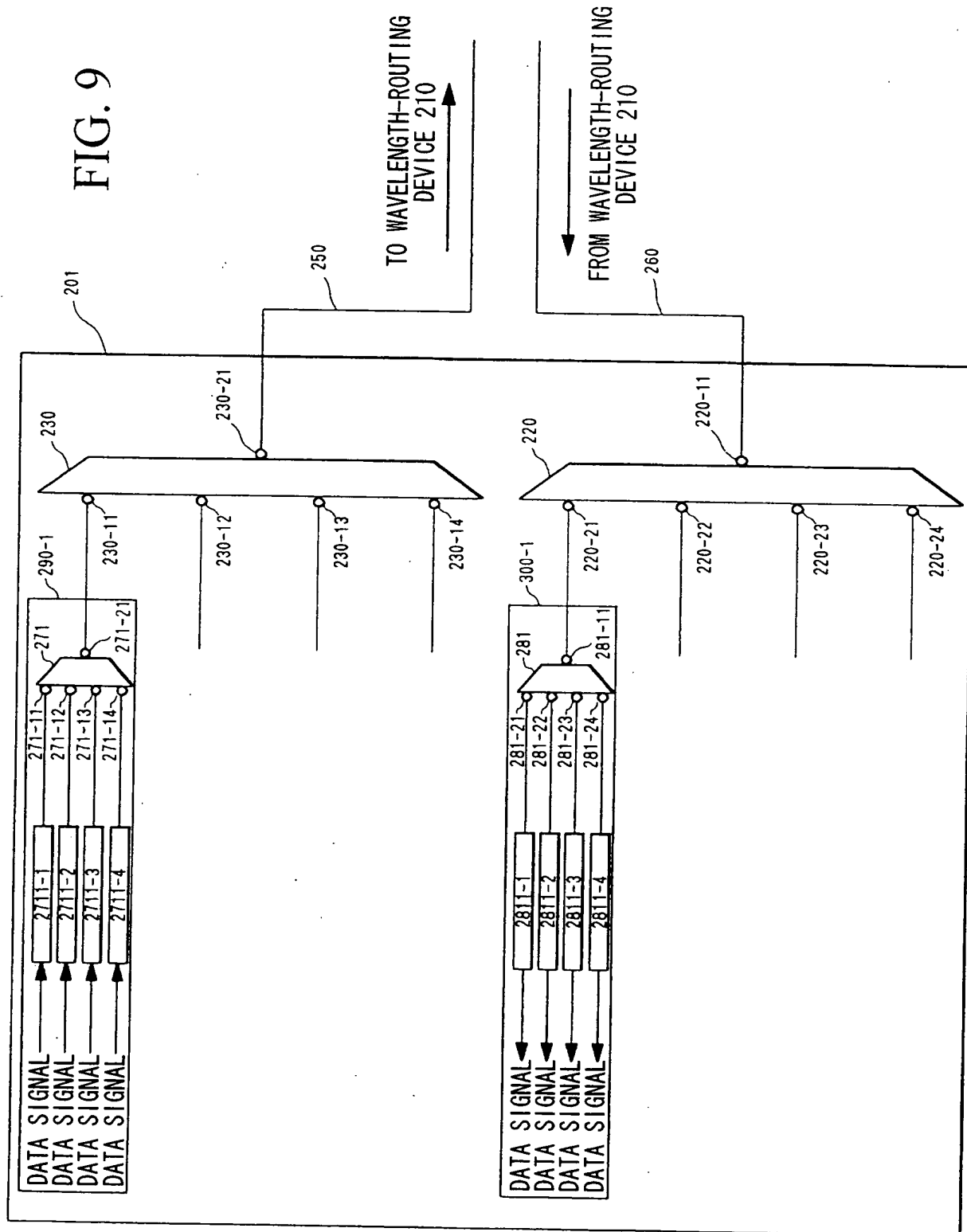
	FIRST OUTPUT PORT	SECOND OUTPUT PORT	THIRD OUTPUT PORT	FOURTH OUTPUT PORT
FIRST INPUT PORT	$\lambda 31$	$\lambda 32$	$\lambda 33$	$\lambda 34$
SECOND INPUT PORT	$\lambda 32$	$\lambda 33$	$\lambda 34$	$\lambda 31$
THIRD INPUT PORT	$\lambda 33$	$\lambda 34$	$\lambda 31$	$\lambda 32$
FOURTH INPUT PORT	$\lambda 34$	$\lambda 31$	$\lambda 32$	$\lambda 33$

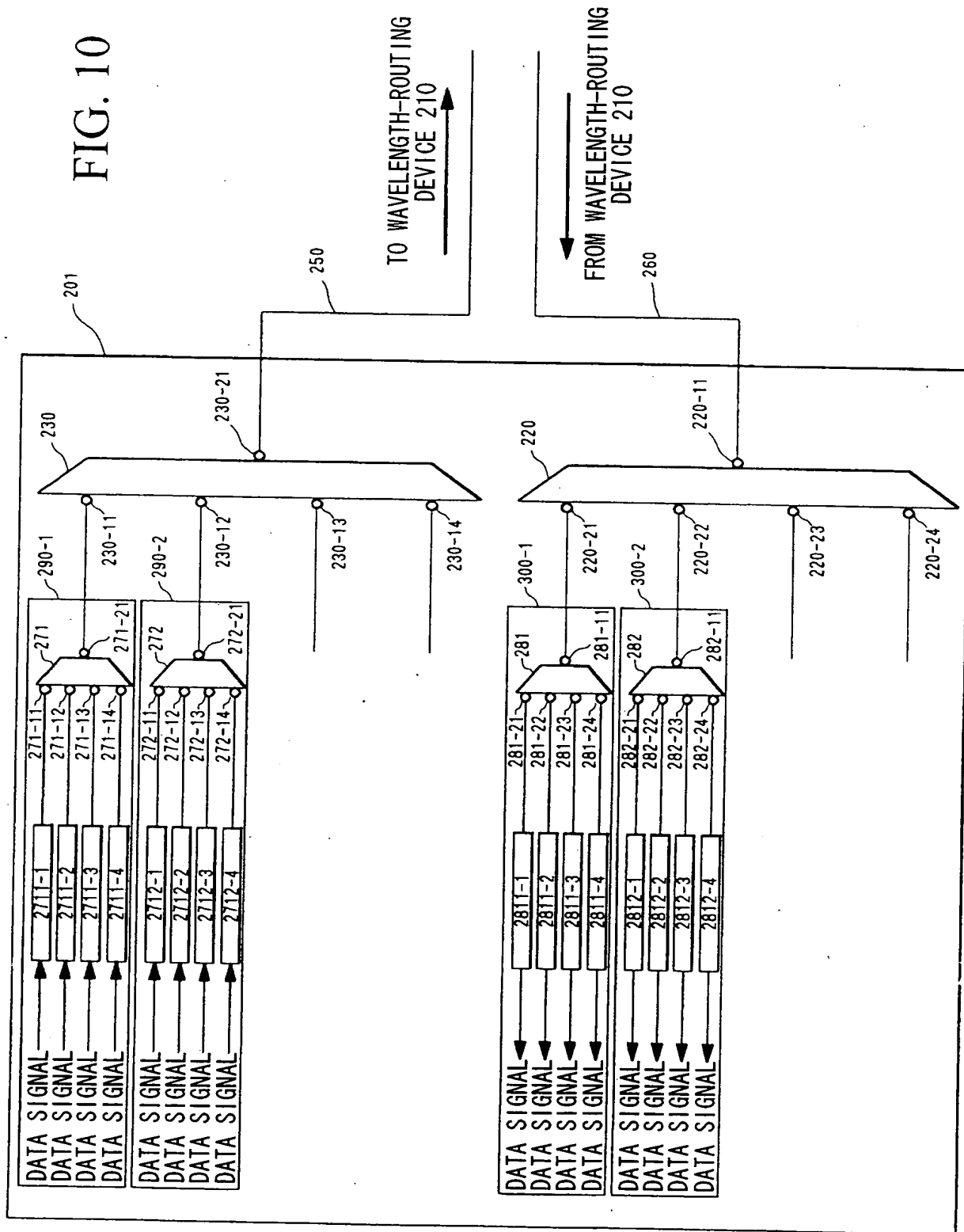
FIG. 7

	FIRST OUTPUT PORT	SECOND OUTPUT PORT	THIRD OUTPUT PORT	FOURTH OUTPUT PORT
FIRST INPUT PORT	$\lambda 41$	$\lambda 42$	$\lambda 43$	$\lambda 44$
SECOND INPUT PORT	$\lambda 42$	$\lambda 43$	$\lambda 44$	$\lambda 41$
THIRD INPUT PORT	$\lambda 43$	$\lambda 44$	$\lambda 41$	$\lambda 42$
FOURTH INPUT PORT	$\lambda 44$	$\lambda 41$	$\lambda 42$	$\lambda 43$

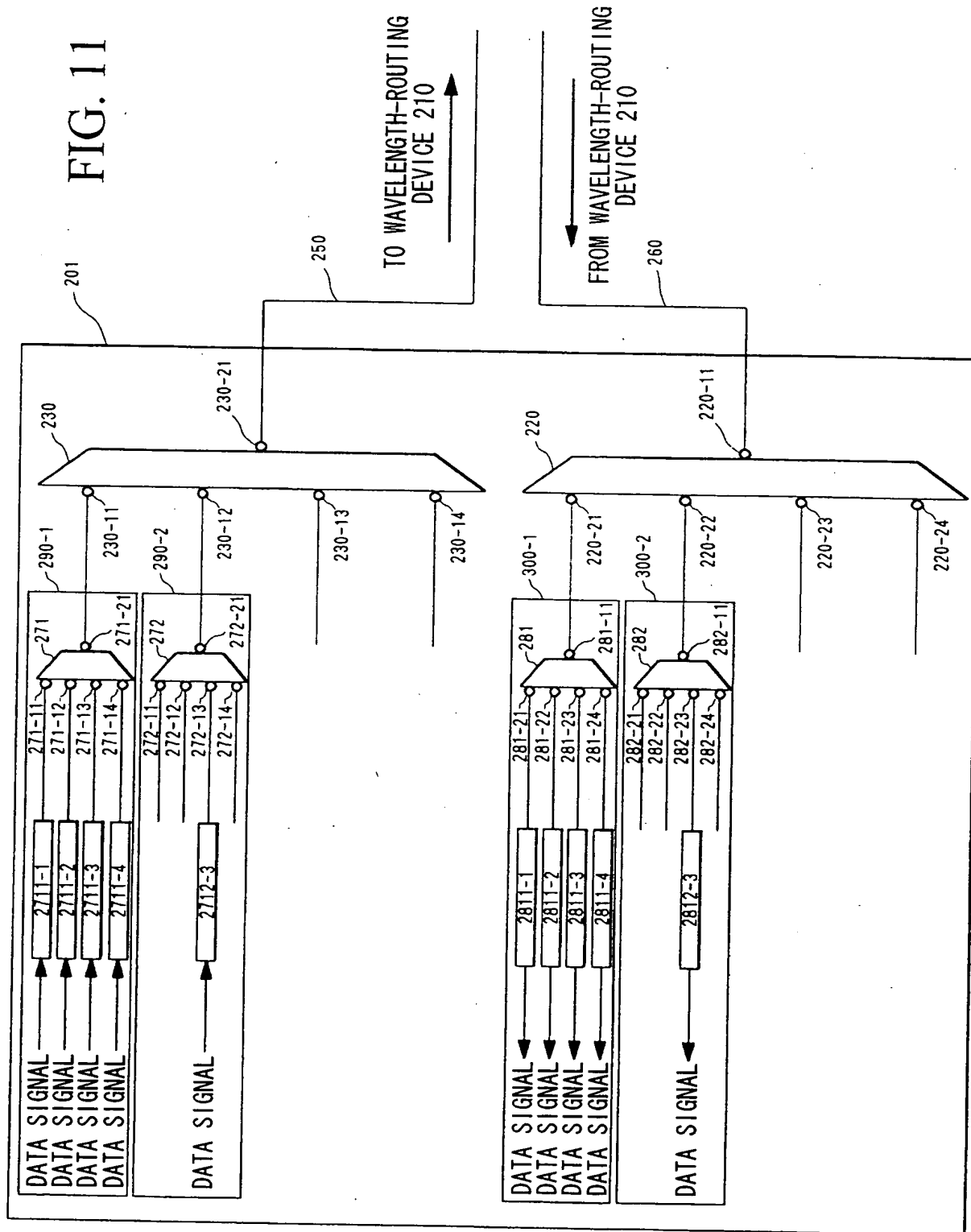
FIG. 8





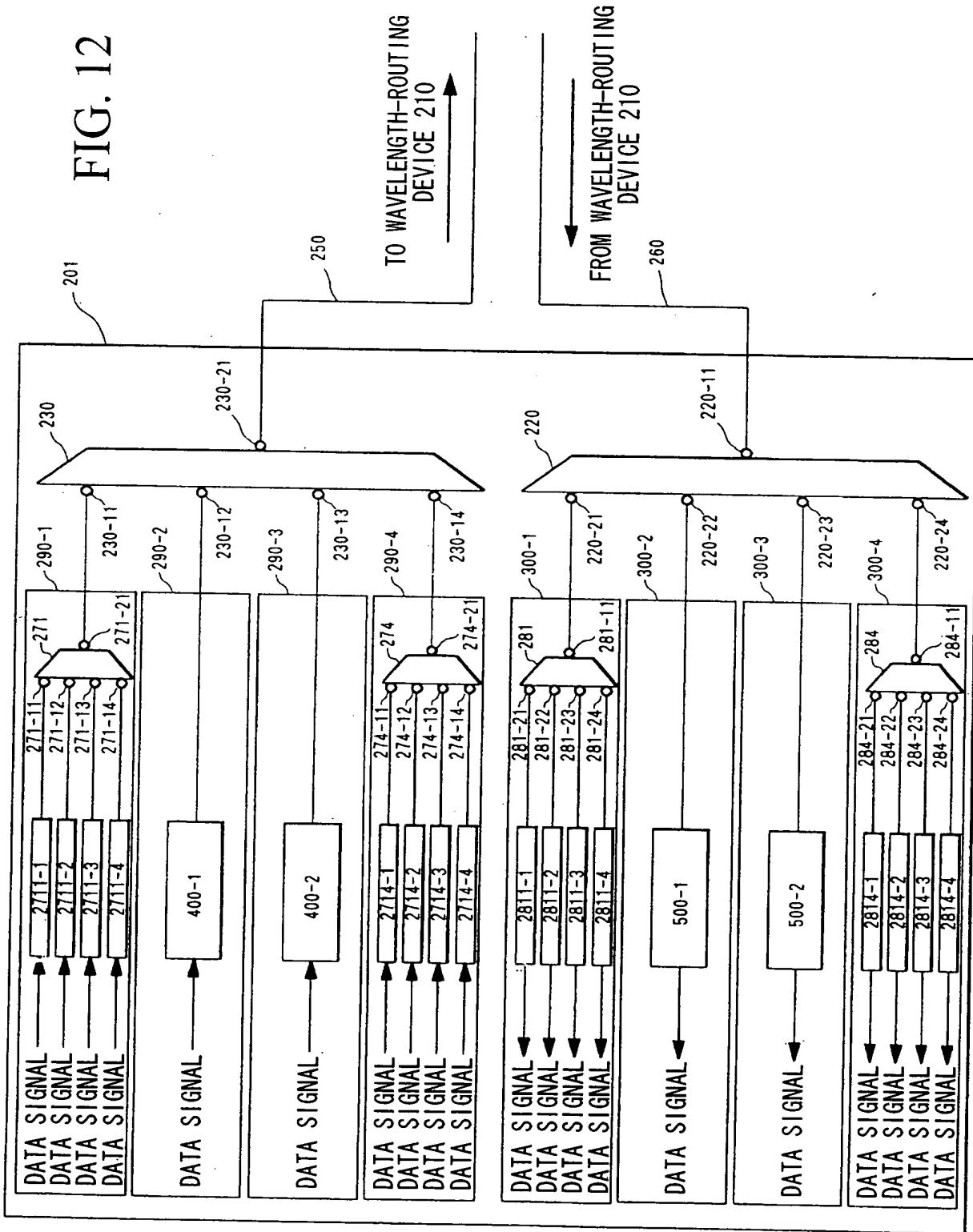


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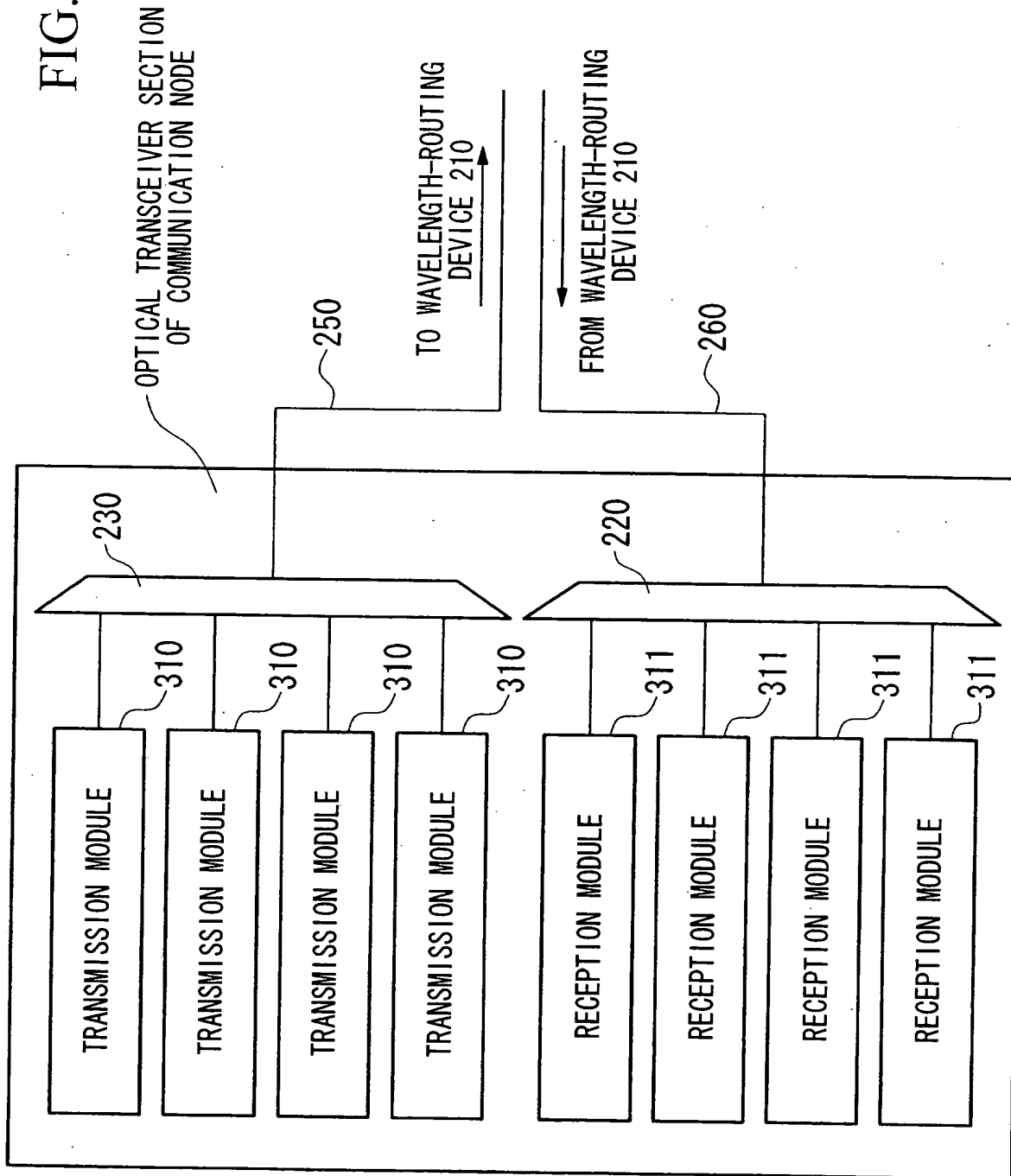
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FIG. 12



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FIG. 13



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FIG. 14A

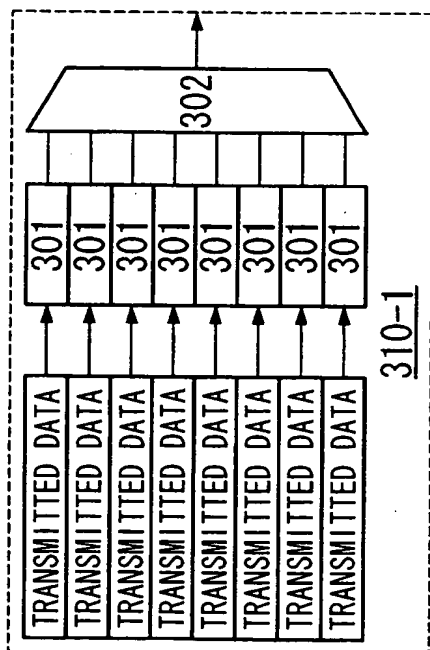


FIG. 14C

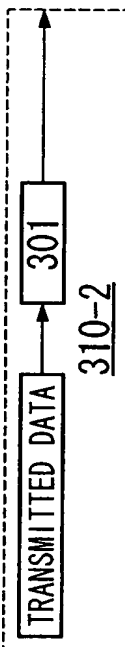


FIG. 14E

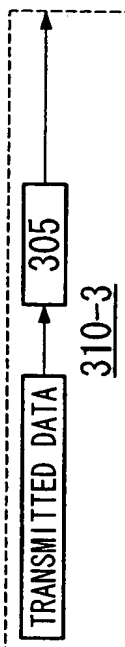


FIG. 14G

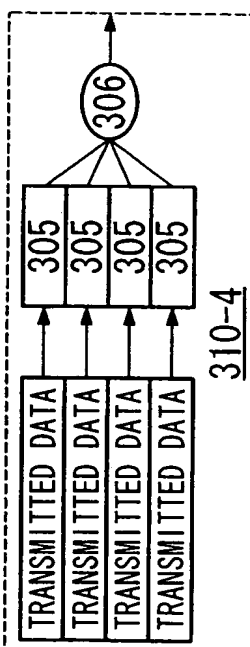


FIG. 14B

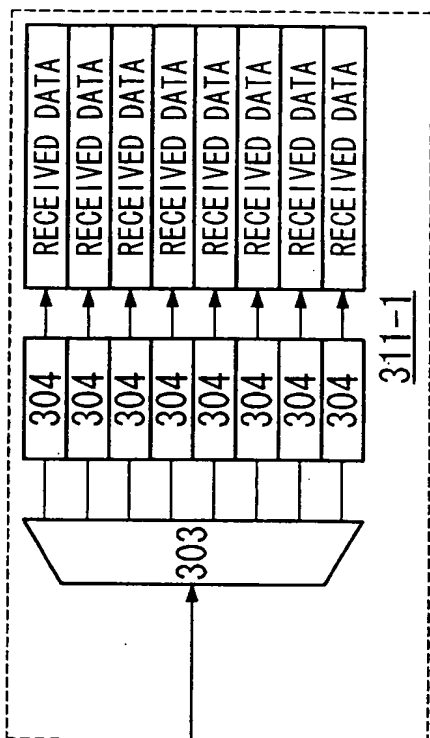


FIG. 14D

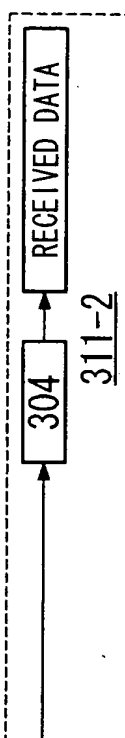


FIG. 14F

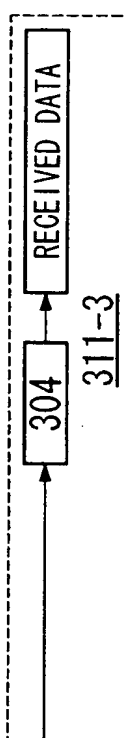
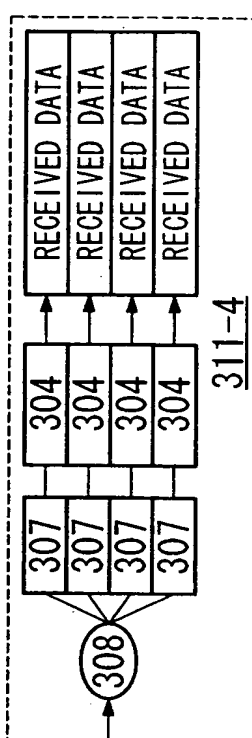


FIG. 14H



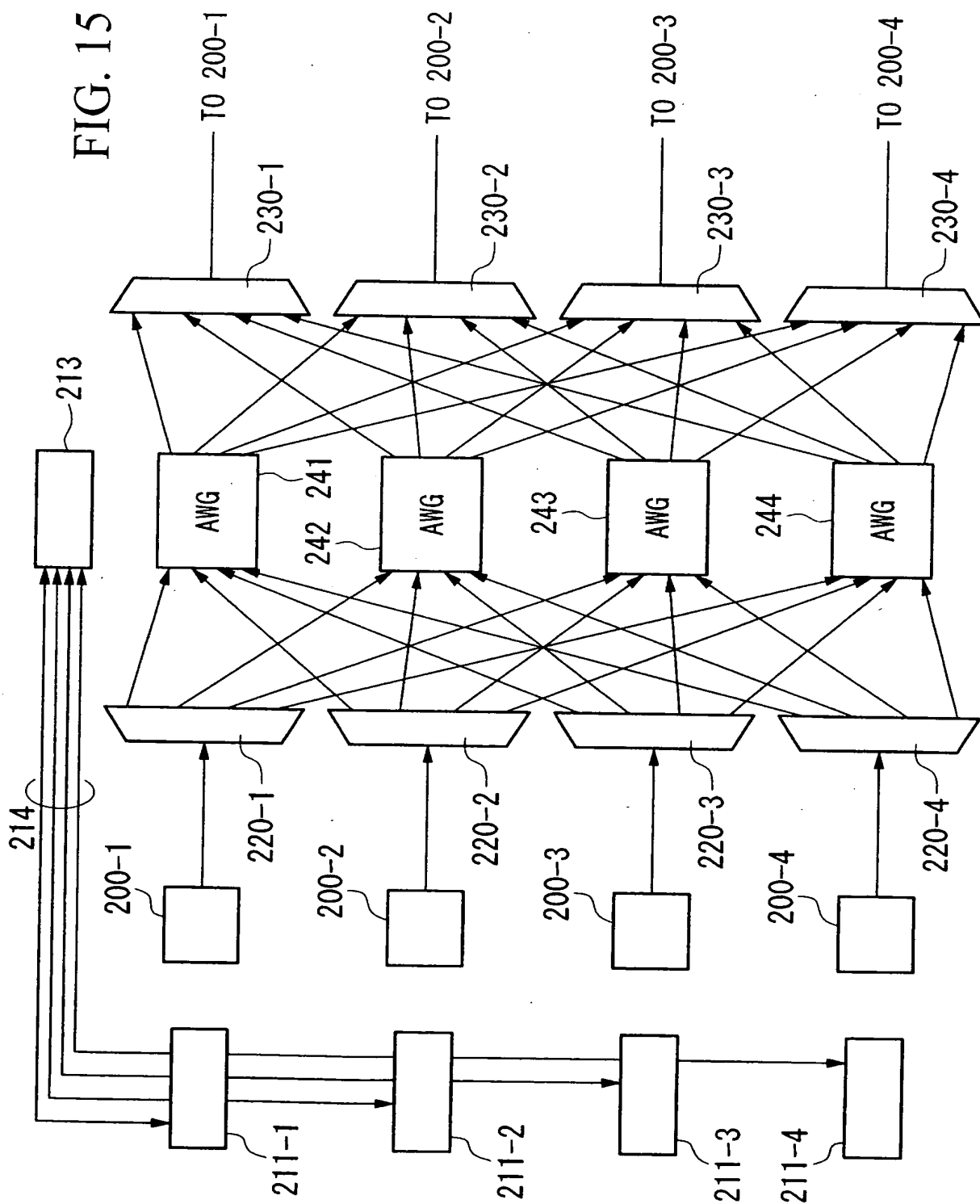


FIG. 16

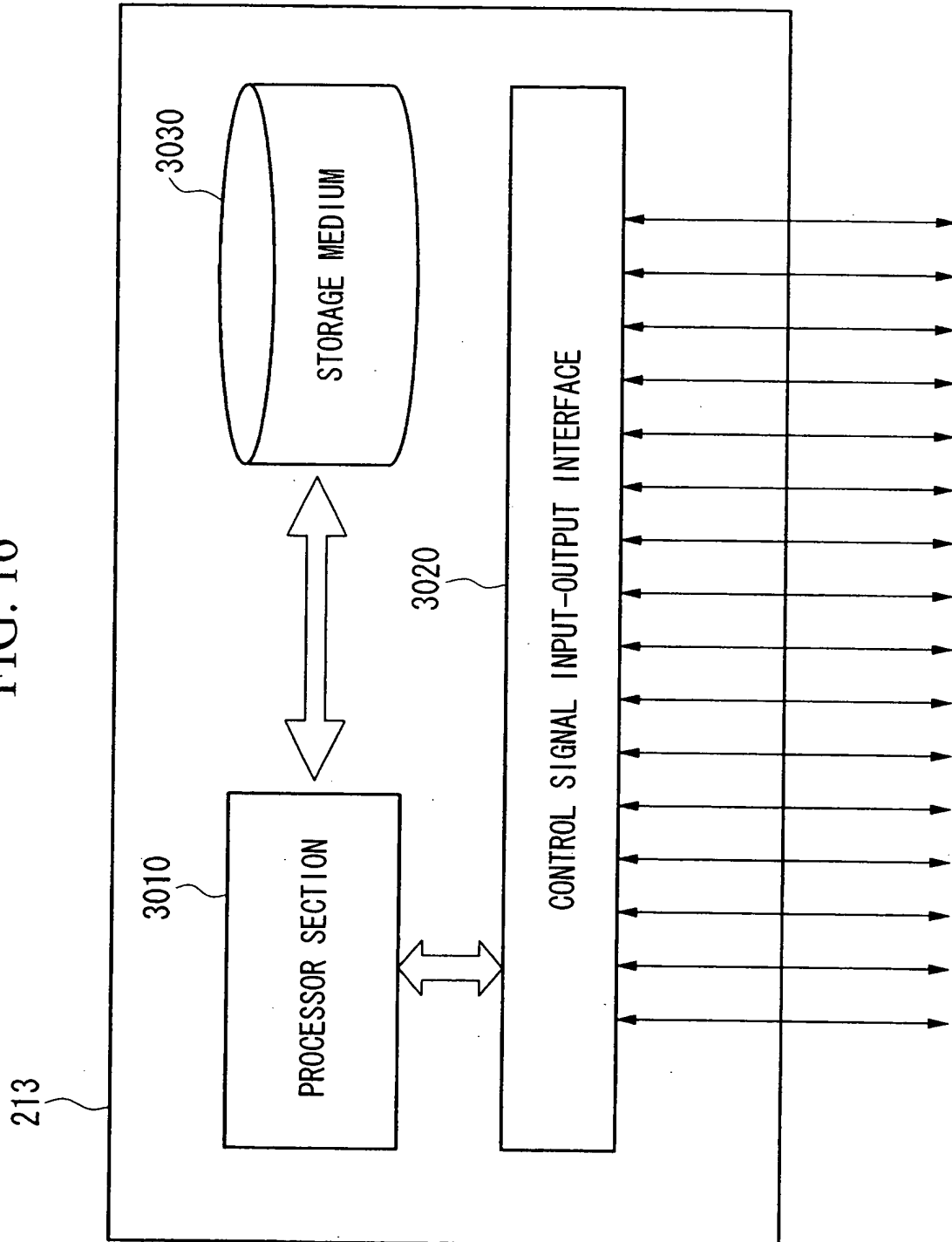
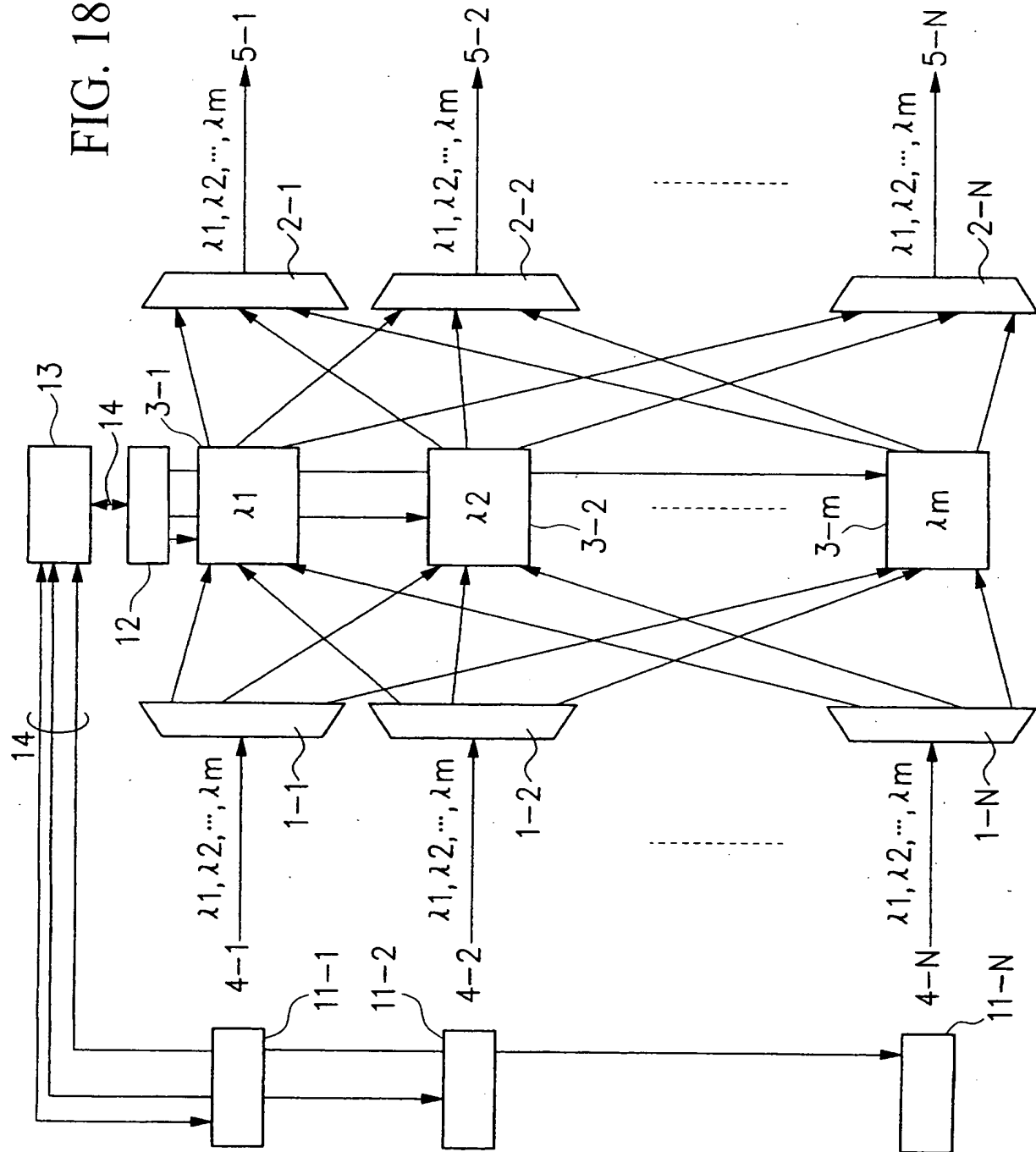


FIG. 17

	T0 200-1	T0 200-2	T0 200-3	T0 200-4	MODULE NUMBER	TOTAL TLD NUMBER	NUMBER OF TLD IN USE
FROM 200-1	λ 11 NA	λ 12 NA	λ 13 OFF	λ 14 ON	1	0	0
FROM 200-2	λ 12 NA	λ 13 NA	λ 14 ON	λ 11 NA	2	0	0
FROM 200-3	λ 13 OFF	λ 14 1	λ 11 OFF	λ 12 OFF	3	1	1
FROM 200-4	λ 14 1	λ 11 OFF	λ 12 OFF	λ 13 OFF	4	2	1

WAVELENGTH BAND $\lambda B_1 \pm \Delta \lambda_1$

FIG. 18



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FIG. 19A

1	
INPUT COMMUNICATION NODE	DESTINATION COMMUNICATION NODE OF OPTICAL PATH
1	3
2	0
3	1
4	0
5	0
6	0
7	0
8	0

TABLE GIVING
OPTICAL PATH OF $\lambda 1$

FIG. 19B

2	
INPUT COMMUNICATION NODE	DESTINATION COMMUNICATION NODE OF OPTICAL PATH
1	0
2	5
3	0
4	0
5	2
6	0
7	0
8	0

TABLE GIVING
OPTICAL PATH OF $\lambda 2$

FIG. 19C

3	
INPUT COMMUNICATION NODE	DESTINATION COMMUNICATION NODE OF OPTICAL PATH
1	0
2	8
3	0
4	0
5	0
6	0
7	0
8	2

TABLE GIVING
OPTICAL PATH OF $\lambda 3$

FIG. 19D

4	
INPUT COMMUNICATION NODE	DESTINATION COMMUNICATION NODE OF OPTICAL PATH
1	3
2	0
3	1
4	0
5	0
6	0
7	0
8	0

TABLE GIVING
OPTICAL PATH OF $\lambda 4$

"0" MEANS THAT RELEVANT
COMMUNICATION NODE IS NOT IN USE

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FIG. 20

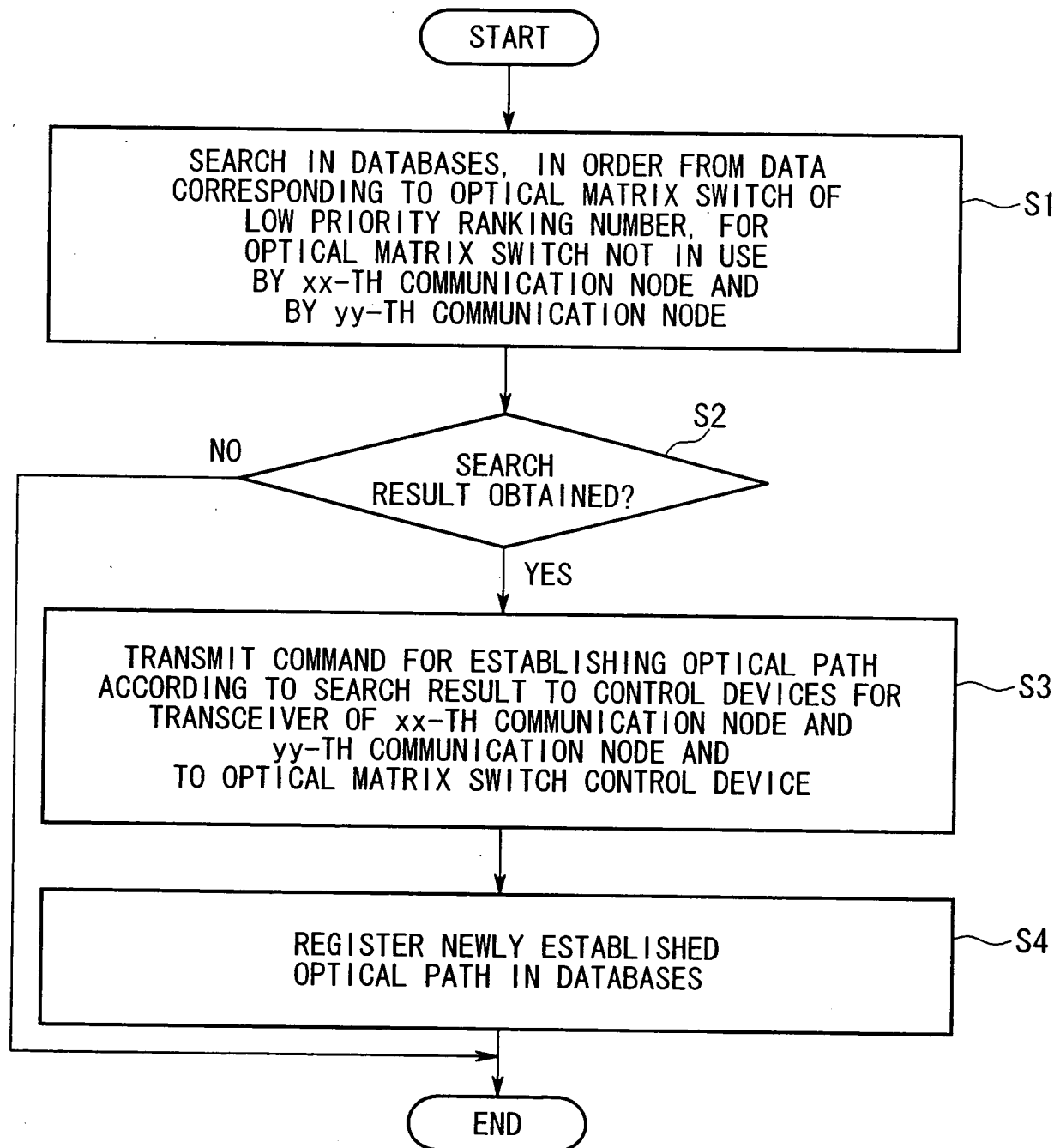


FIG. 21

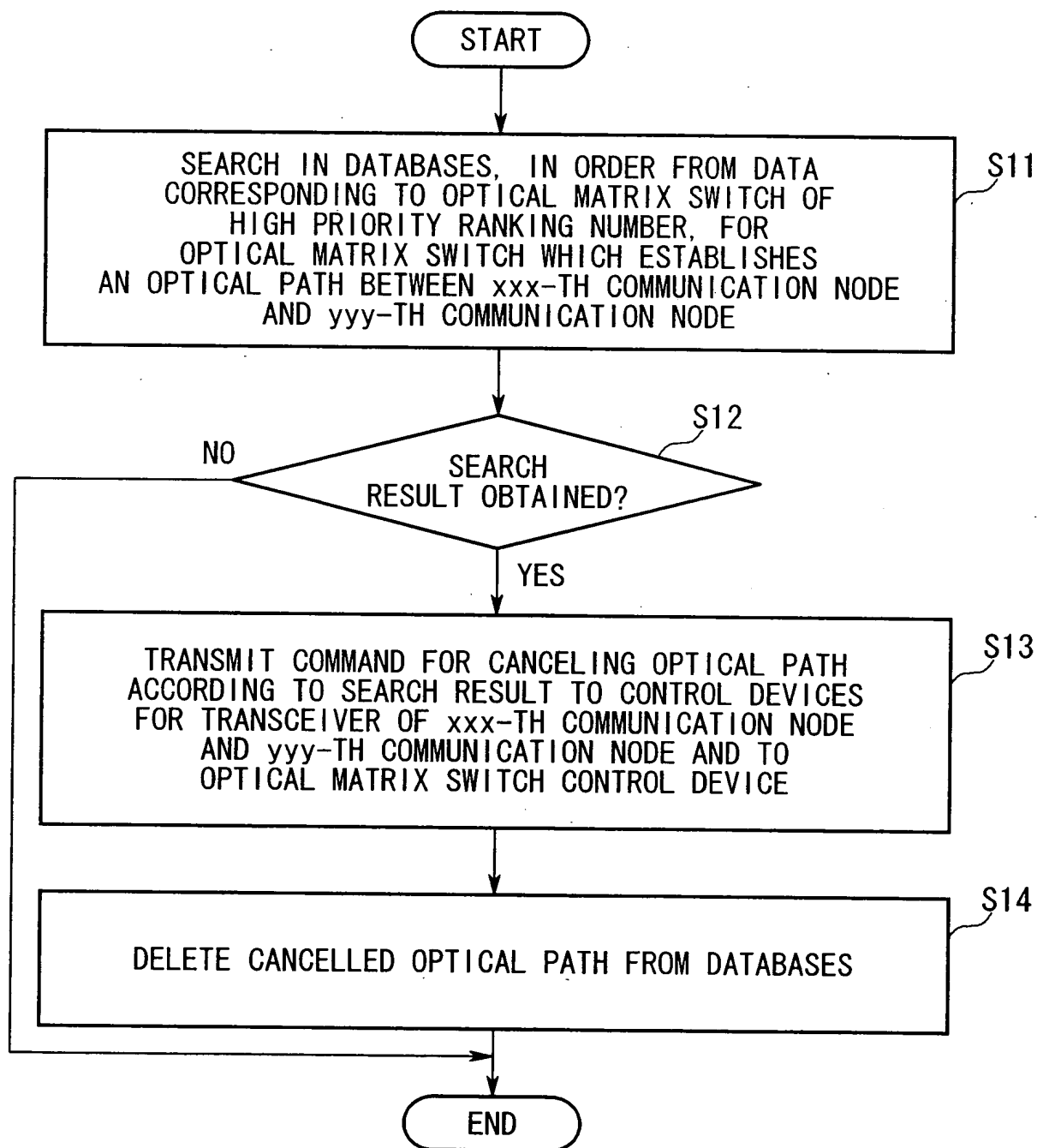
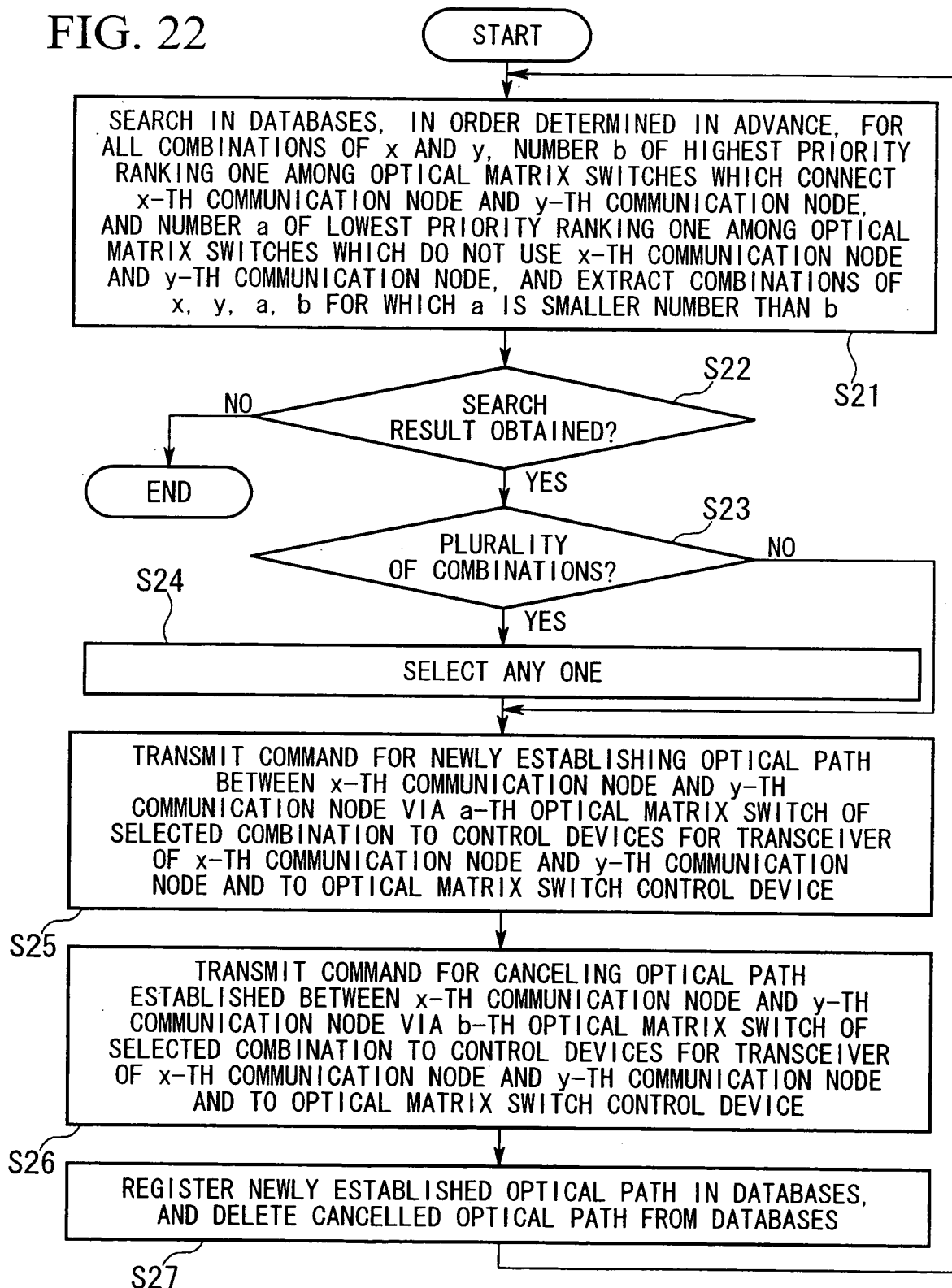


FIG. 22



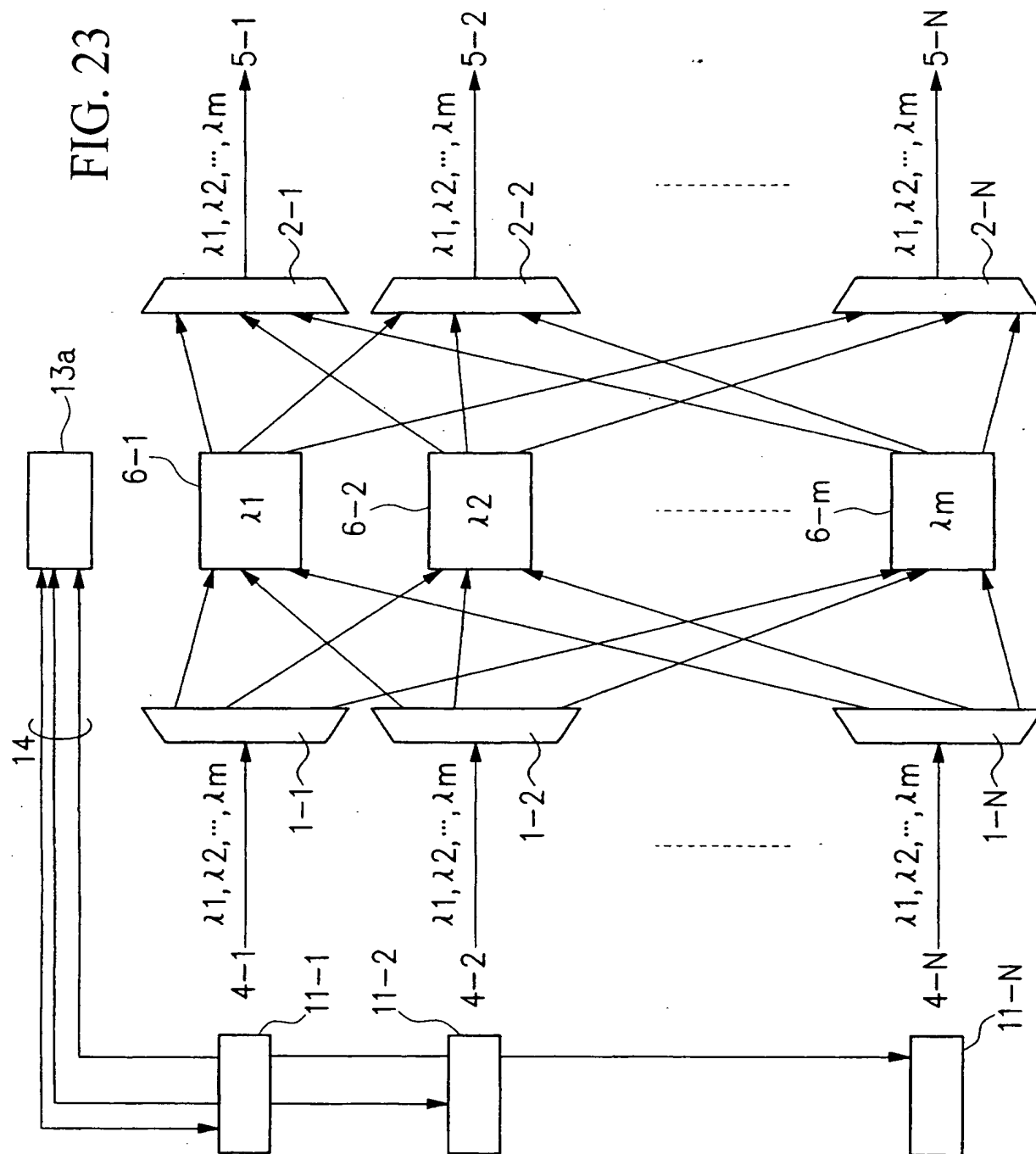


FIG. 24

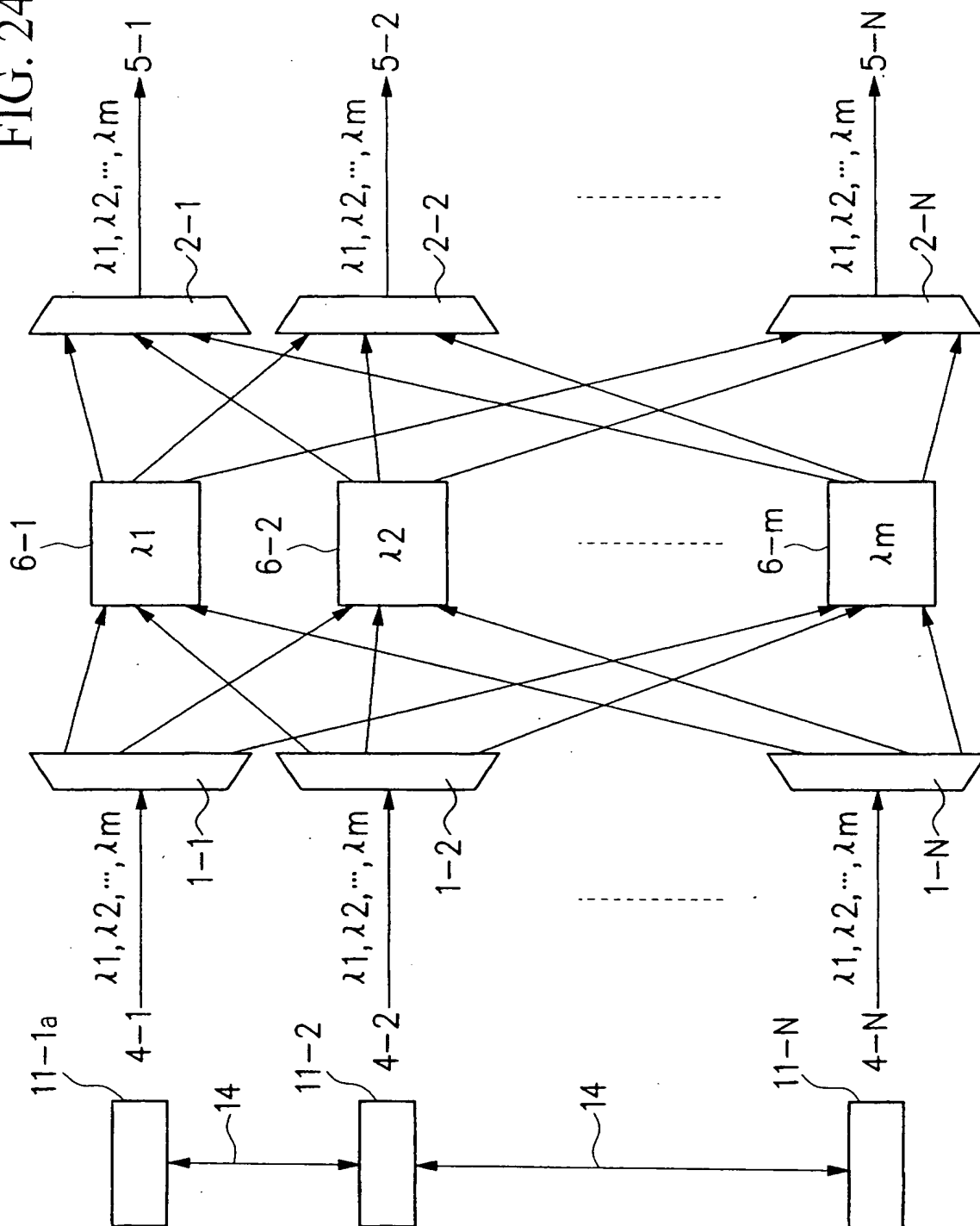
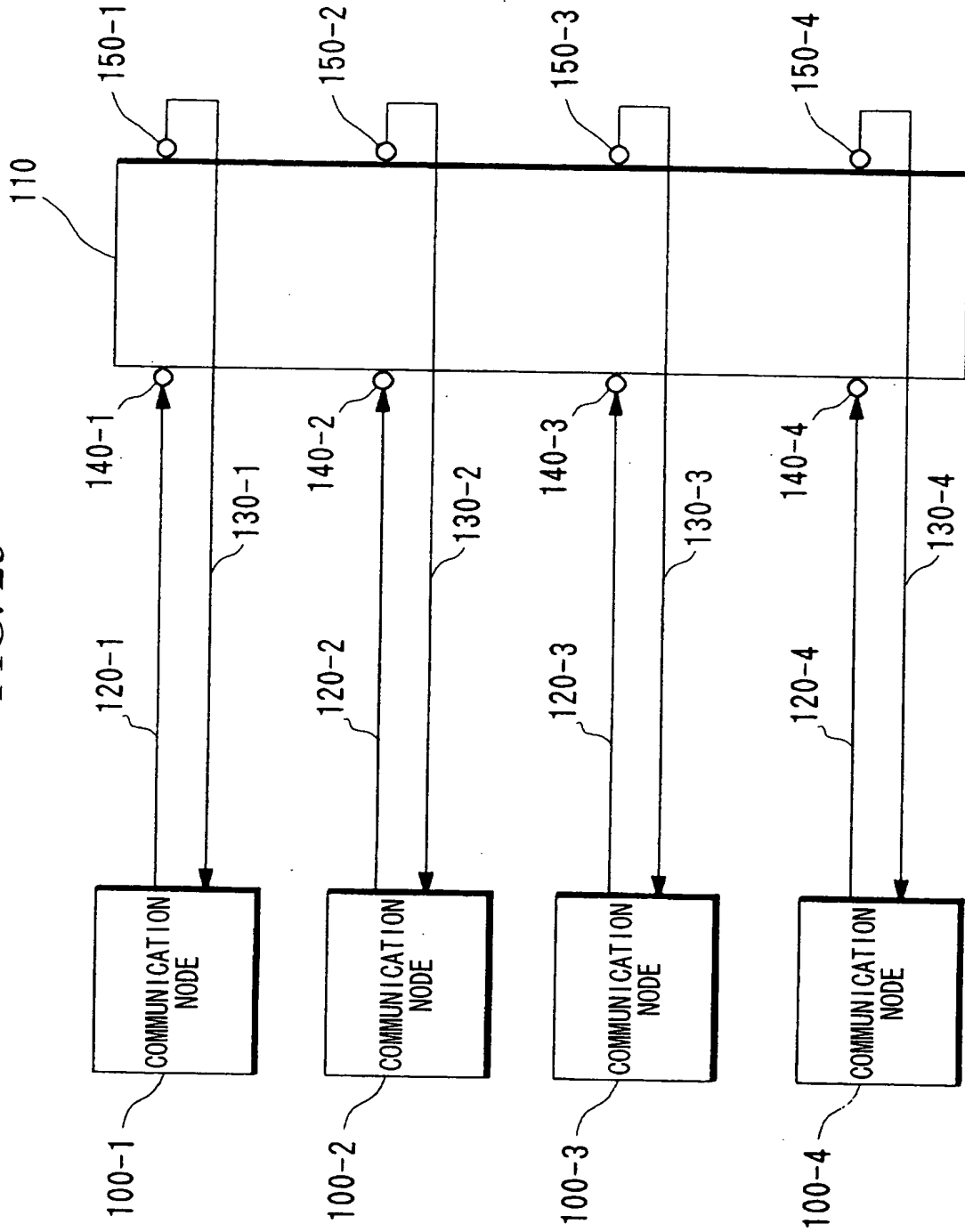


FIG. 25



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FIG. 26

		OUTPUT PORT			
INPUT PORT		150-1	150-2	150-3	150-4
	140-1	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
	140-2	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 1$
	140-3	$\lambda 3$	$\lambda 4$	$\lambda 1$	$\lambda 2$
	140-4	$\lambda 4$	$\lambda 1$	$\lambda 2$	$\lambda 3$

FIG. 27

		OUTPUT PORT			
INPUT PORT		150-1	150-2	150-3	150-4
	140-1	$\lambda 1$	$\lambda 2$	$\lambda 3$	$\lambda 4$
	140-2	$\lambda 2$	$\lambda 3$	$\lambda 4$	$\lambda 5$
	140-3	$\lambda 3$	$\lambda 4$	$\lambda 5$	$\lambda 6$
	140-4	$\lambda 4$	$\lambda 5$	$\lambda 6$	$\lambda 7$

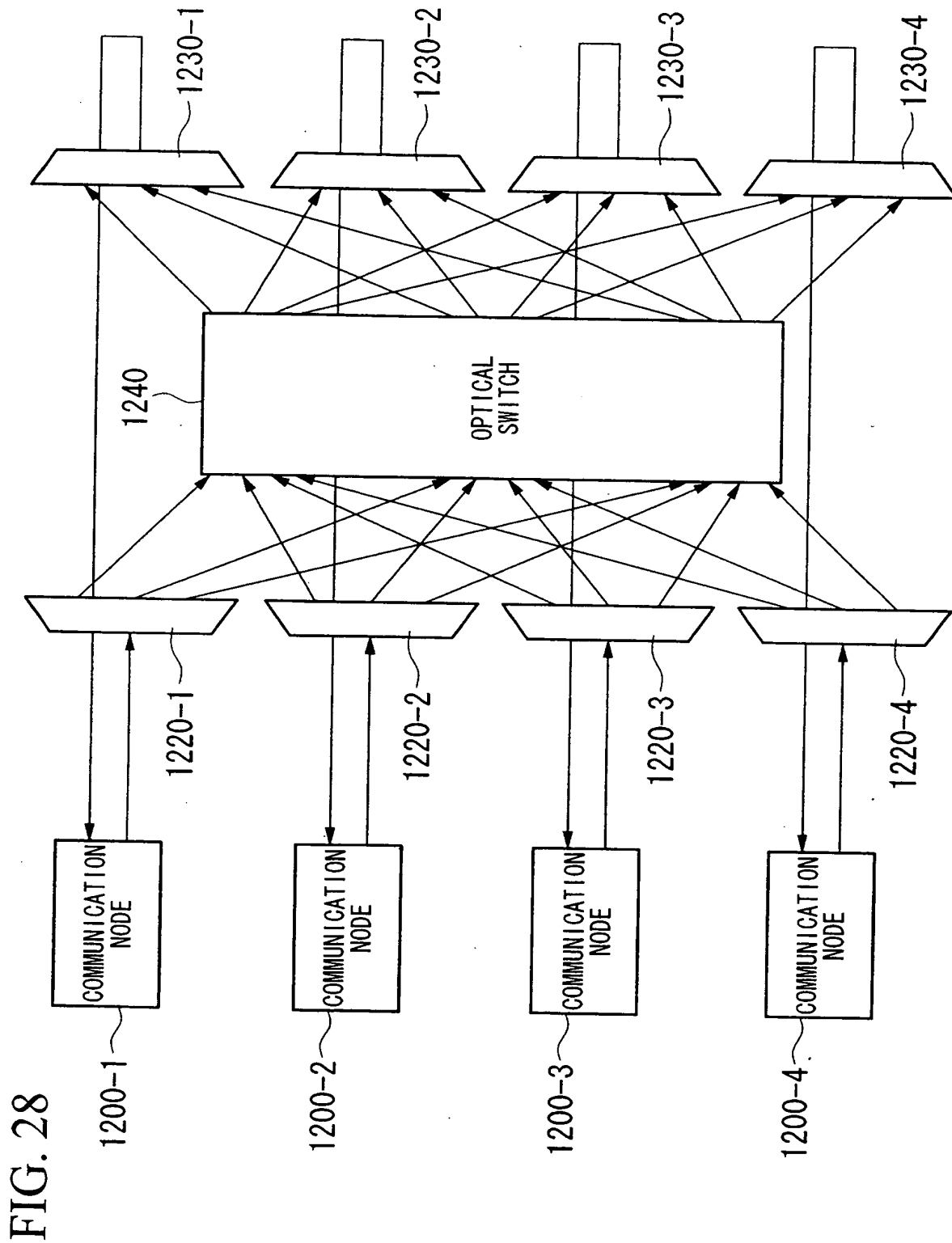
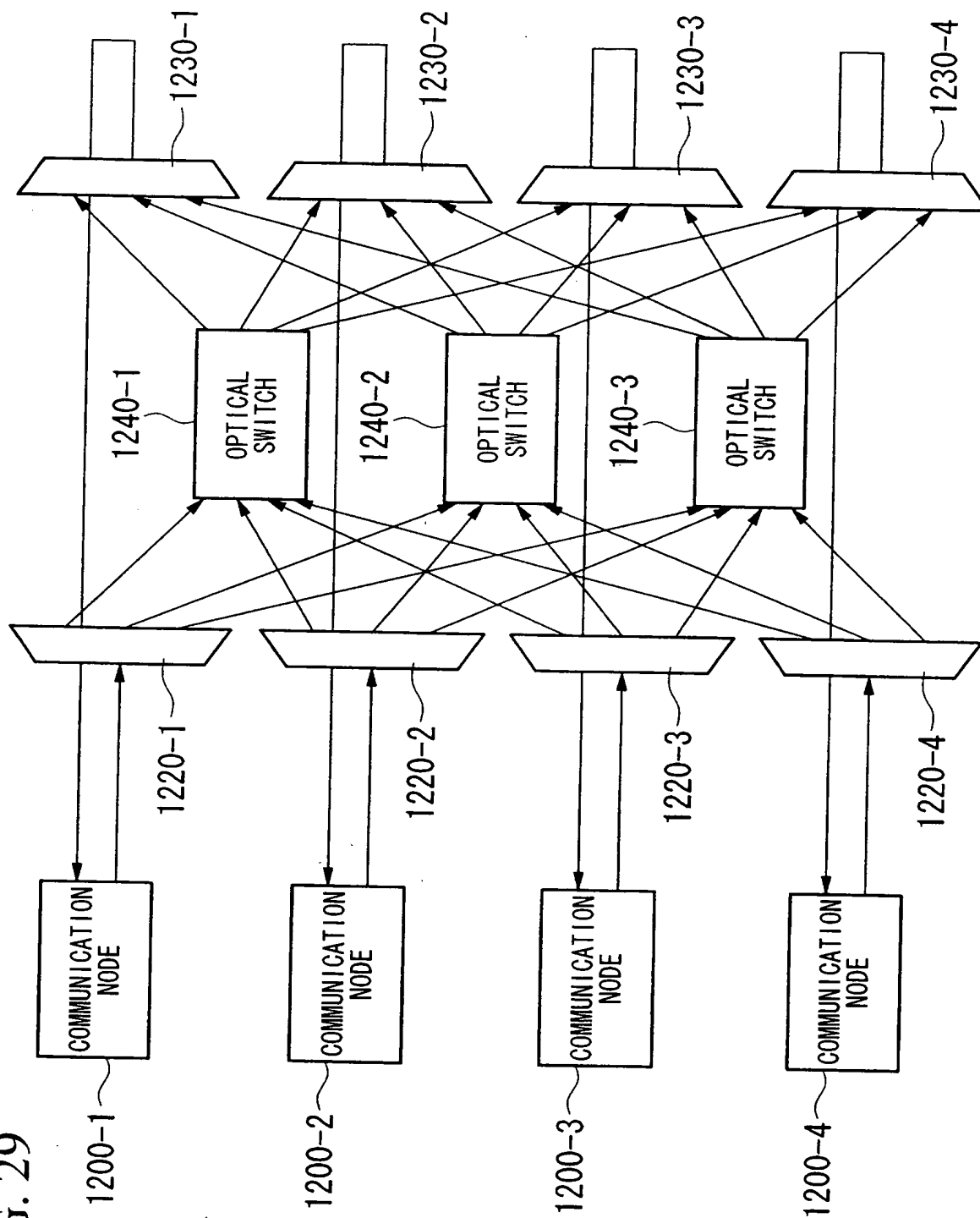


FIG. 29



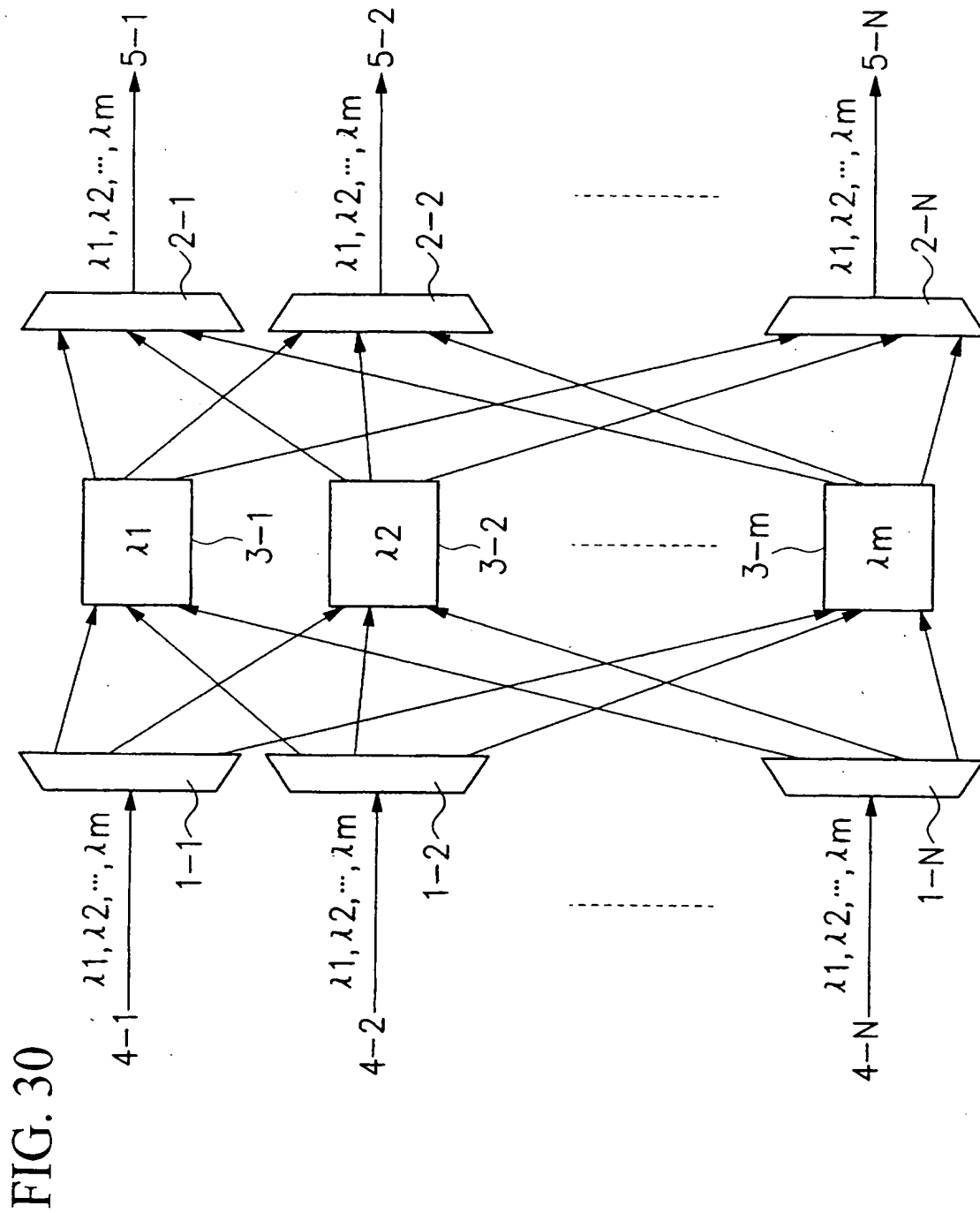


FIG. 31A

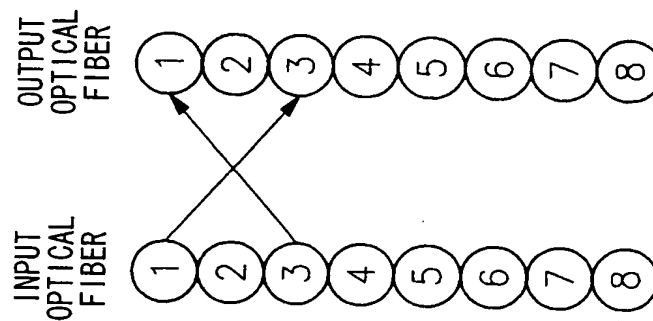


FIG. 31B

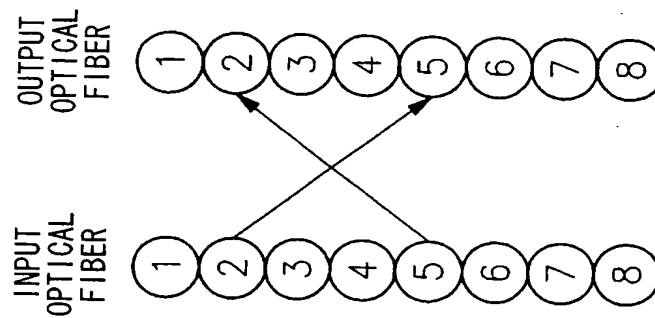


FIG. 31C

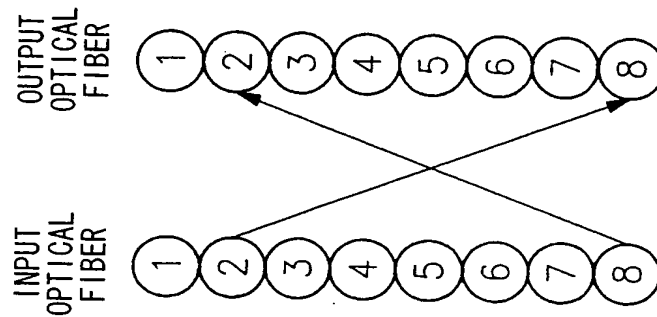


FIG. 31D

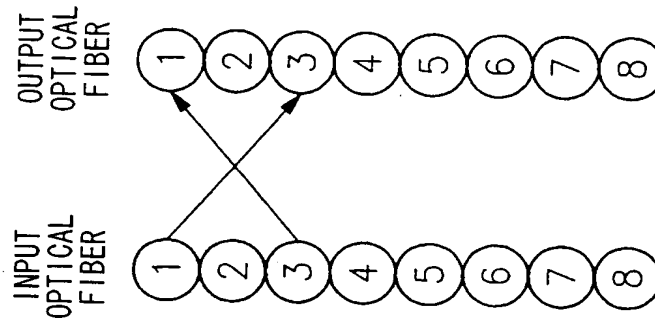


FIG. 32A

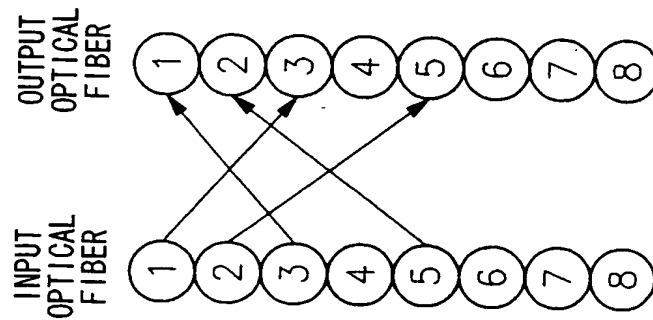


FIG. 32B

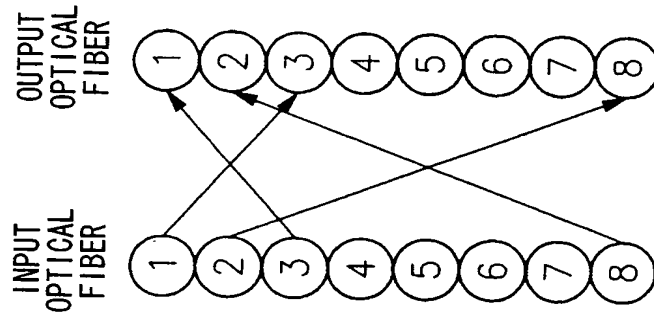


FIG. 32C

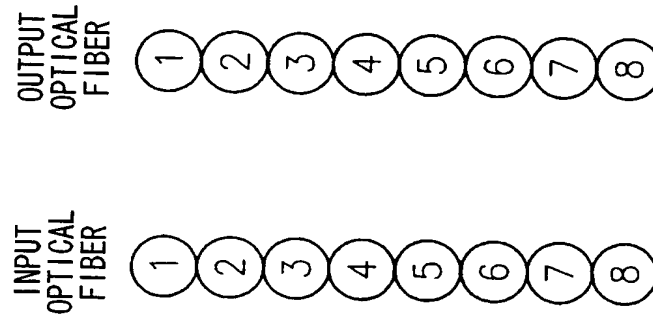


FIG. 32D

